Name: _____   Date: _____
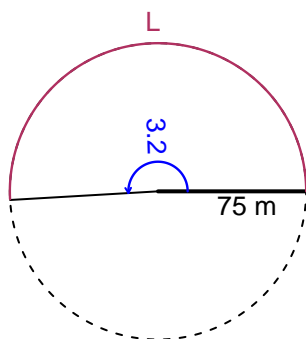
Trig Final (Practice v4)

- You can use a calculator (like Desmos)
- You should have a unit-circle with special angles and coordinates marked.
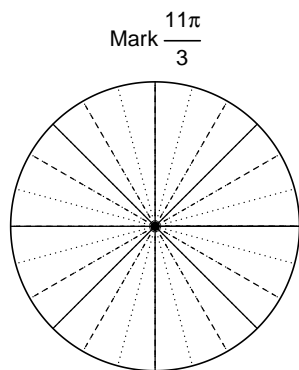
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 75 meters. The angle measure is 3.2 radians. How long is the arc in meters?
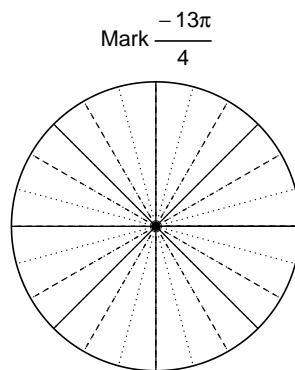

Question 2

Consider angles $\frac{11\pi}{3}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{3}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\frac{11\pi}{3}$

Find cos(11π/3)

Mark $\frac{-13\pi}{4}$

Find sin(−13π/4)

1

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -2.22$ meters, a frequency of 3.33 Hz, and an amplitude of 8.03 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).